

REMARKS

Claims 18-51 are pending in this application. By this Amendment, claims 18-33 and 35-49 are amended and claims 50 and 51 are added.

The Office Action objected to the disclosure based on a lack of section headings. The specification is amended to add sections headings.

The Office Action objected to the disclosure based on the claims being referred to in the specification. The specification is amended to remove references to the claims.

The Office Action rejected claims 19, 23-25, 28, 30-33, 35, 39-41, 44 and 46-49 under 35 USC §112, second paragraph. Applicants respectfully traverse the rejection.

Regarding the part of the rejection based on the use of the term “substantially”, Applicants refer to MPEP §2173.05(b). MPEP §2173.05(b) states that a term of degree does not automatically render the claim indefinite under 35 U.S.C. §112, second paragraph. That section of the MPEP specifically addresses the use of the term “substantially” and states that if one skilled in the art would know what was meant by “substantially”, then the use of “substantially” does not make the claim indefinite. In the present Application, “substantially” is used to allow for manufacturing tolerances and other small variations in shape or symmetry. The use of “substantially” helps strengthen the claims by preventing a potential infringer from asserting that their device is not, for example, precisely circular (or U-shaped or E-shaped). One skilled in the art of food heating devices would know what is meant by a substantially circular path of core elements, or a substantially U-shaped core element, for example. Also, one skilled in the art of food heating devices would know what is meant by two heating conductors being substantially symmetrical to one another, or by a winding core that is substantially rotationally symmetrical. This is especially true in light of the specification and drawings of the Application.

Regarding claims 28 and 44, Applicants note that proper antecedent basis for the retaining means exists in claims 26 and 42, respectively. The claims are amended to obviate the remaining parts of the rejection under 35 U.S.C. §112, second paragraph.

In light of the above, Applicants request that the rejection be withdrawn.

The Claimed Invention

An exemplary embodiment of the invention, as recited by independent claim 18, is directed to a device for heating food by means of induction. The device has heating means including a secondary winding formed from a current conductor and a heating element connected to said secondary winding; and a winding core disposed inside said secondary winding.

A second exemplary embodiment of the invention, as recited by independent claim 34, is directed to a device for transmitting energy to a device for heating food by means of induction. The device for transmitting energy has a primary winding formed from a current conductor and connected to a voltage source; and a winding core located inside said primary winding.

A third exemplary embodiment of the invention, as recited by independent claim 50, is directed to a device for heating food by induction. The device has a container for containing the food to be heated and a heating section fixed to the container. The heating section has a secondary winding formed from a current conductor; a winding core having an outer wall, an inner wall, and a base connecting the outer wall and the inner wall such that the outer wall, inner wall and base form a trough in which the secondary winding is positioned; and a heating element electrically connected to the secondary winding and positioned adjacent to the container. The outer wall and the inner wall are substantially circular and are arranged concentrically.

A fourth exemplary embodiment of the invention, as recited by independent claim 51, is directed to a device for transmitting energy to a device for heating food by induction. The device for transmitting energy includes a primary winding formed from a current conductor and connected to a voltage source, and a winding core. The winding core has an outer wall, an inner wall, and a base connecting the outer wall and the inner wall such that the outer wall, inner wall and base form a trough in which the primary winding is positioned. The outer wall and the inner wall are substantially circular and are arranged concentrically.

Some conventional pots for use in inductive heating include a conventionally shaped secondary winding and a heating element built into the base of the pot. The conventionally shaped secondary winding can lead to a pot having a base that occupies a large volume.

An object of the invention is to provide an inductive heating system in which a smaller amount of space is needed in the base of the pot. This is particularly useful in smaller pots.

The Poumey Reference

The Office Action rejected claims 18, 26, 27, 29, 34, 42, 43 and 45 under 35 U.S.C. §102(b) as being unpatentable over U.S. Patent No. 4,996,405 to Poumey et al. Applicants respectfully traverse the rejection.

Claim 18 includes the feature of a winding core disposed inside a secondary winding. In contrast, Poumey does not show a winding core disposed inside a winding. Further, Poumey does not show or even discuss a winding core at all.

Claims 26, 27 and 29 depend from claim 18.

Claim 26 includes the feature of the winding core including a plurality of core elements (claim 22) and retaining means which interconnects the core elements in a load-bearing manner. In contrast, as stated above, Poumey does not disclose a winding core. Further, Poumey does not disclose a winding core that includes a plurality of core elements. Further still, Poumey does not disclose retaining means which interconnect a plurality of core elements, or any retaining means that provides a load-bearing function. Indeed, the Office Action does not point to any part of Poumey that corresponds to any of the features of claim 26.

Claim 27 depends from claim 26.

Claim 27 includes the feature of the retaining means including a printed circuit board. The Office Action directs attention to Fig. 2 and col. 1, lines 49-65, of Poumey as disclosing a printed circuit board. Applicants submit that Poumey does not disclose a printed circuit board. Fig. 2 may show a circuit, but it does not show a printed circuit board. The section of the specification referred to discusses a circuit, but it does not disclose a printed circuit board. The

printed circuit board of claim 27 is, or is part of, the retaining means that interconnects the plurality of core elements in a load-bearing manner. A circuit as disclosed in Poumey does not necessarily include any structure (such as a printed circuit board) that can provide interconnection to core elements in a load-bearing manner.

Claim 29 includes the feature of the secondary winding being arranged on a printed circuit board. The Office Action directs attention to Fig. 2 and col. 1, lines 49-65, of Poumey as disclosing a printed circuit board. Applicants submit that Poumey does not disclose a printed circuit board. Fig. 2 may show a circuit, but it does not show a printed circuit board. The section of the specification referred to discusses a circuit, but it does not disclose a printed circuit board.

Claim 34 includes the feature of a winding core disposed inside a primary winding. In contrast, Poumey does not show a winding core disposed inside a winding. Further, Poumey does not show or even discuss a winding core at all.

Claims 42, 43 and 45 depend from claim 34.

The arguments presented above with regard to claim 26 apply to the rejection of claim 42.

The arguments presented above with regard to claim 27 apply to the rejection of claim 43.

The arguments presented above with regard to claim 29 apply to claim 45.

In view of the foregoing, Applicants respectfully submit that Poumey does not disclose each and every features of claims 18, 26, 27, 29, 34, 42, 43 and 45 and, therefore, rejection under 35 USC §102(b) is inappropriate. As a result, Applicants respectfully request withdrawal of the rejection.

The Poumey Reference in view of the Chen Reference and the Yoshioka Reference

The Office Action rejected claims 19-25, 28, 30-33, 35-41, 44 and 46-49 under 35 U.S.C. §103(a) as being unpatentable over Poumey in view of U.S. Patent No. 6,281,611 to Chen et al.

and U.S. Patent No. 5,690,851 to Yoshioka et al. Applicants respectfully traverse the rejection.

Claim 19 includes the feature of the winding core being substantially rotationally symmetrical. The Office Action applies Chen as showing a winding core that is substantially rotationally symmetrical and refers to col. 2, lines 32-37. This portion of the specification of Chen describes U-shaped permanent magnet 42 and its rotation; It has nothing to do with a winding core or anything being rotationally symmetrical. U-shaped permanent magnet 42 is not a winding core and it is not rotationally symmetrical. As described at page 2, lines 20-28, and page 11, lines 29-31, and as seen in at least Fig. 8 of the present application, “rotationally symmetrical” is understood to mean that the element (in this case the winding core) can be rotated and still be present at the same locations along the rotation. In other words, the element is, for example, disc-like or bowl-like.

Claim 20 includes the feature of the winding core being configured as a pot core. The term “pot core” is defined in the specification in the last paragraph on page 2. A pot core has, among other attributes, an outer wall and an inner wall separated from the outer wall by a base. The Office Action asserts that container 30 of Chen corresponds to the claimed pot core. Container 30 is a container in which food is placed for heating. Container 30 is not a winding core of any type.

Claim 21 includes, among other things, the feature of the winding core having a central column. The Office Action asserts that drive shaft 36 of Chen corresponds to the claimed central column of the winding core. Drive shaft 36 is a drive shaft for transmitting rotational movement from motor 22 to U-shaped permanent magnet 42. Drive shaft 36 is not any part of a winding core.

Claim 22 includes the feature of the winding core including a plurality of core elements. The Office Action applies Yoshioka as disclosing a plurality of core elements and asserts that it would have been obvious to modify Poumey in view of Chen with the plurality of core elements shown in Yoshioka. Applicants disagree with this assertion. It appears that Yoshioka uses a plurality of core elements because the windings are shaped to conform to the cylindrical shape of a can. By providing a plurality of core elements in a particular embodiment, Yoshioka avoids

the expense of providing a cylindrical shaped core. Applicants submit that no such motivation exists in any of the references for providing a plurality of core elements in a core shaped like core 134 of Chen. As a result, it would not have been obvious to split the core of Chen into a plurality of core elements.

Claim 28 includes the feature of the retaining means being substantially ring-shaped. The Office Action appears to apply Chen and/or Yoshioka as disclosing the features of claim 28. However, the Office Action does not point out what feature of Chen or Yoshioka teaches or suggests these features. Applicants submit that neither Chen nor Yoshioka teaches or suggests a substantially ring-shaped retaining means that interconnects a plurality of core elements in a load-bearing manner.

Claim 31 includes the feature of the heating element including the same number of heating conductors as the winding core has core elements. The Office Action refers to the core elements of Yoshioka but does not point to anything in Chen or Yoshioka that teaches or suggests a heating element including the same number of heating conductors as a winding core has core elements. Applicants submit that Chen does not show any features of the heating element referred to in Fig. 2.

Claim 32 includes the feature of at least two of the heating conductors being arranged substantially symmetrically with respect to each other. The Office Action applies Chen as disclosing the features of claim 32. However, the Office Action does not point out what feature of Chen teaches or suggests these features. Applicants submit that Chen does not teach or suggest at least two heating conductors being arranged substantially symmetrically with respect to each other. Chen does not disclose multiple heating conductors.

Claim 33 includes the feature of each heating conductor being arranged substantially uniformly distributed in a piece-of-cake-shaped segment. The Office Action applies Chen as disclosing the features of claim 33. However, the Office Action does not point out what feature of Chen teaches or suggests these features. Applicants submit that Chen does not teach or suggest at each heating conductor being arranged substantially uniformly distributed in a piece-of-cake-shaped segment. Chen does not disclose multiple heating conductors.

The arguments presented above regarding claim 19 apply to the rejection of claim 35.

The arguments presented above regarding claim 20 apply to the rejection of claim 36.

The arguments presented above regarding claim 21 apply to the rejection of claim 37.

The arguments presented above regarding claim 22 apply to the rejection of claim 38.

The arguments presented above regarding claim 28 apply to the rejection of claim 44.

The arguments presented above regarding claim 31 apply to the rejection of claim 47.

The arguments presented above regarding claim 32 apply to the rejection of claim 48.

The arguments presented above regarding claim 33 apply to the rejection of claim 49.

In view of the foregoing, Applicants respectfully submit that the combination of Poumey, Chen and Yoshioka does not teach or suggest the features of claims 19-25, 28, 30-33, 35-41, 44 and 46-49 and, therefore, rejection under 35 USC §103(a) is inappropriate. As a result, Applicants respectfully request withdrawal of the rejection.

New Claims

New claims 50 and 51 define the winding cores as having an outer wall, an inner wall, and a base connecting the outer wall and the inner wall such that the outer wall, inner wall and base form a trough in which the primary winding is positioned and further define the outer wall and the inner wall as being substantially circular and are arranged concentrically.

Applicants submit that new claims 50 and 51 are allowable over the applied references.

CONCLUSION

In view of the above, entry of the present Amendment and allowance of claims 18-51 are respectfully requested. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,

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